

REMARKS

Claims 1-3 and 6-13 are pending in the present application. Claims 1, 3, 6, 7, 8, 11 and 13 are herein amended. No new matter has been presented. Claim 2 is herein canceled.

Claim Rejections - 35 U.S.C. §112, second paragraph

Claim 13 is rejected under 35 U.S.C. §112, second paragraph, as being indefinite, because it recites the limitation "the cleaved inorganic layer compound" in the last two lines. The Examiner notes that there is insufficient antecedent basis for this limitation in the claim.

Applicants herein change the claim to refer to the step of "...further treating the resulting mixture in a high speed stirring apparatus and/or a high pressure dispersing apparatus to cleave and distribute the ~~cleaved~~ inorganic layered compound (b) in the dispersion medium".

Claim Rejections - 35 U.S.C. §103(a)

Claim 1-3, 6-11 and 13 remain rejected under 35 U.S.C. §103(a) as being unpatentable over Sakaya et al. (US 5,942,298) in view of Gregorich et al. (Can. J Soil Sci. 68: 395-403). Claim 12 is rejected under 35 U.S.C. §103(a) as being unpatentable over Sakaya et al. (US 5,942,298) in view of Gregorich et al. (Can. J Soil Sci 68: 395-403) in further view of Uchida et al. (US 6,569,533).

The Examiner notes that Gregorich et al. is used solely to teach that it is known in the art to use hydrogen peroxide in dispersions of inorganic compounds. The Examiner further notes that Gregorich et al. is used for materials such as clays.

The Examiner concluded that one would have been motivated to combine the dispersion process of Gregorich et al. with the invention of Sakaya et al. because the films of Sakaya et al. are formed from a dispersion process, and Gregorich et al. teaches that peroxide enhances dispersion of inorganic materials.

Applicants submit that the Examiner may be mischaracterizing the teaching of Gregorich et al. as motivation for one skilled in the art to have used peroxide with all dispersions, rather than the dispersions as disclosed therein, which teaching would not be applicable to combining with.

The present invention relates to a gas barrier coating composition, comprising an inorganic layered compound dispersion (c), wherein an inorganic layered compound (b) is dispersed using a peroxide (a) in a dispersion medium, and a gas barrier resin (d), and wherein a mixture containing the peroxide (a) and inorganic layered compound (b) in a specific mixing ratio is dispersion treated in a high speed stirring apparatus and/or a high pressure dispersing apparatus. Thereby, the present invention provides an inorganic layered dispersion prepared by cleaving the inorganic layered compound to a thinner layer level and capable of providing high corrosion resistance and gas barrier properties.

In the present invention, it is important to cleave an inorganic layered compound to a thinner layer level to provide high corrosion resistance and gas barrier properties. For that

purpose, an inorganic layered compound is dispersed using a specific amount of peroxide and a high speed stirring apparatus.

Sakaya discloses a gas barrier coating composition containing an inorganic layered compound (ex. 'Kunipia F', montmorillonite) and a gas barrier resin (ex. PVA) (See column 10, line 20 to 26, in Sakaya et al.) However, Sakaya et al. does not disclose that an inorganic layered compound is dispersed using peroxide.

Gregorich et al. disperses soil to investigate size-distributed components of soil. Specifically, organic matter in soil is degraded and soil is distributed to clay, silt and sand using a peroxide. Gregorich et al. applies a peroxide to compounds containing large amounts of organic matter, and does not apply a peroxide to inorganic matters containing less organic matter as the present invention.

Applicants admit that Gregorich et al. appears to provide some guidance and therefore motivation for one skilled in the art to have used peroxide to facilitate dispersion of *some* soil, because Gregorich et al. teaches that hydrogen peroxide is effective in disrupting silt aggregates, and presumably therefore enhancing dispersion, at least in comparison to lower levels of ultrasonic energy (page 400, first full paragraph).

However, on page 400, middle paragraph and following, Gregorich et al. describes that hydrogen peroxide is effective in disrupting silt aggregates as noted above. However, Gregorich et al. then notes that, "the peroxide treatment is ineffective in dispersing sand-sized microaggregates may **due to failure of the peroxide to destroy completely organic matter within sand-sized aggregates.**" (Emphasis added.)

Applicants submit that the above passage teaches that peroxide is effective in disrupting silt aggregates that contain significant amounts of organic matter within them *only because peroxide at least partly destroys the organic matter within the silt aggregates*. If this is the case, then Gregorich et al. would have motivated to have used the hydrogen peroxide only when there was significant amounts of organic matter to be destroyed, but Gregorich et al. would not be seen as teaching or suggesting that peroxide is effective in disrupting silt aggregates that do not contain significant amounts of organic matter.

Therefore, there would have been no motivation to apply hydrogen peroxide to a dispersion that contained inorganic material but no significant amounts of organic material, as in Sakaya et al. The only motivation for one to have used peroxide when preparing the inorganic layered compound of Sakaya et al. would have been if the inorganic layered compound of Sakaya et al. contained organic material that needs to be destroyed.

Further, Gregorich et al. discloses a method for separating soil and compares ultrasonic dispersion of soil to peroxide dispersion of soil for investigation for distribution of organic matter in size fraction.

On the other hand, in the present invention, in order to cleave a laminar compound such as clay to a primary clay mineral, not only a peroxide but also a high speed stirring apparatus and/or a high pressure dispersing apparatus is used for dispersing an inorganic layered compound.

Gregorich et al. does not consider that an inorganic layered compound is cleaved by using a peroxide and a high speed stirring apparatus like the present invention.

Furthermore, the Examiner asserts that Gregorich et al. disclosed a mixing ratio of a peroxide and an inorganic layered compound of the present invention.

However, Gregorich et al. indicates the amount of the peroxide added to the soil and the amount of the clay obtained after dispersing. Clay is resulted by dispersing soil using a peroxide. Gregorich does not indicate the amount of a peroxide and the amount of an inorganic layered compound itself.

Therefore, Gregorich et al. does not disclose a mixing ratio of a peroxide and an inorganic layered compound of the present invention. Gregorich et al. does not motivate to disperse an inorganic layered compound using peroxide.

Therefore, the present invention would not have been obvious from Sakaya et al. and Gregorich et al.

Applicants further note that Uchida et al. disclose a gas barrier composite film comprising paper and a gas barrier composite plastic film. However, Applicants note that Uchida et al. does not a gas barrier composite plastic film obtainable from the gas barrier coating composition of the present invention.

As noted above, the present invention is not obvious from Sakaya et al. and Gregorich et al. Therefore, the present invention is not obvious from Sakaya et al., Gregorich et al. and Uchida et al.

Application No. 10/524,680
Attorney Docket No. 043210

Amendment under 37 C.F.R. §1.116
Amendment filed January 14, 2009

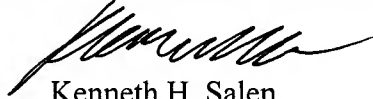
In view of the aforementioned amendments and accompanying remarks, Applicants submit that the claims, as herein amended, are in condition for allowance. Applicants request such action at an early date.

If the Examiner believes that this application is not now in condition for allowance, the Examiner is requested to contact Applicants' undersigned attorney to arrange for an interview to expedite the disposition of this case.

If this paper is not timely filed, Applicants respectfully petition for an appropriate extension of time. The fees for such an extension or any other fees that may be due with respect to this paper may be charged to Deposit Account No. 50-2866.

Respectfully submitted,

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